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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,429	12/12/2000	Ramanathan T. Jagadeesan	2705-131	5284

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EXAMINER	
SEFCHECK, GREGORY B	

ART UNIT	PAPER NUMBER
2662	3

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/735,429	JAGADEESAN, RAMANATHAN T.	
	Examiner	Art Unit	
	Gregory B Sefcheck	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-68 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-68 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 December 2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4-9, 21-26, 38-43, and 55-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claims 4, 21, 38 and 55 are unclear as to the "counting in the sequence at least one duration number of contiguously occurring of one of lost packets and received packets." It is unclear how contigiously occurring packets are defined by a duration number.
- Claims 5-9, 22-26, 39-43, and 56-60 are rejected due to their dependence from claims 4, 21, 38, and 55, respectively.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitfield (US006693921B1) in view of Hardy (US006370120B1).

- In regards to Claims 1-3, 5, 6, 11, 12, 14, 15, 18-20, 22, 23, 28, 29, 31, 32, 35-37, 39, 40, 45, 46, 48, 49, 52-54, 56, 57, 62, 63, 65, and 66,

Whitfield discloses a method, apparatus and processing article for receiving and processing voice data transmitted over a packet network (Title; Abstract; claim 1/18/35/52 – device/article/method connected to a network for receiving and decoding/processing packets of sound/voice).

Whitfield shows the use of a jitter buffer that receives the voice packets from network (Col. 1, lines 45-49; claim 1 – jitter buffer for receiving packets from network that encode sound data).

Referring to Fig. 3, Whitfield shows the use of sequence information for assembling the received packets and determining which packets are missing or lost (Col. 4-5, lines 40-18; claim 1/18/35/52 – determine intended sequence of the voice data from the received packets; claim 1/18/35/52 – arrange the packets in sequence; claim 1/18/35/52 – infer lost packets in places of the sequence not having a corresponding received packet).

Whitfield shows utilizing a predetermined QoS parameter that quantifies the distribution of lost packets with respect to a given number of transmitted packets (packet loss distribution; Col. 4, lines 7-13).

However, Whitfield does not expressly show dynamically determining or updating this statistic with the current received and analyzed voice data. Furthermore, Whitfield does not show determining a figure of merit for the received sequence of data based on the QoS parameter (statistic) of packet loss distribution.

Hardy shows a method, apparatus and software implementation for evaluating the quality of packet-switched voice signals. Hardy shows that the average rate of packet loss is used to determine the quality of the received packets of voice signals (Col. 7, lines 28-35; Col. 8, lines 37-65; claim 1/18/35/52 – determine burstiness statistic quantifying distribution of lost packets wrt received packets within the sequence). Hardy shows that a received sequence of voice packets can then be characterized based on the packet loss parameters determined from the received data (Col. 2, lines 37-61; Col. 7, lines 15-28; claim 2/5/11/14/19/22/28/31/36/39/45/48/53/56/62/65 – determine a figure of merit for the sequence from the burstiness statistic; claim 3/6/12/15/20/23/29/32/37/40/46/49/54/57/63/66 – determine average packet loss rate; determine figure of merit using average packet loss rate).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the method, apparatus and processing article of Whitfield by determining and modifying the QoS parameters of packet loss distribution for a received stream of voice packets, as taught by Hardy. This modification would improve the accuracy of the QoS parameters used in receiving and analyzing subsequent voice packets and enable characterization of the quality of the received voice packets.

- In regards to Claims 4, 10, 21, 27, 38, 44, 55, and 61,

Whitfield v. Hardy discloses a method, apparatus and processing article for receiving, processing, and determining packet loss statistics of voice data transmitted over a packet network.

Whitfield does not show counting a duration of contiguously occurring lost and received packets in the received sequence.

Hardy shows measuring and statistically summarizing the frequency and duration of dropouts (bad states) due to lost packets for the received voice data (Col. 7, lines 28-35). These measured statistics allow various calculations for quantifying the quality of the received packets (claim 4/21/38/55 – processor adapted to the burstiness statistic by counting in the sequence at least one duration number of contiguously occurring of one of lost packets and received packets; claim 10/27/44/61 – processor is further adapted to determine the burstiness statistic by defining good states in the sequence that correspond to at least some of the received packets; claim 10/27/44/61 – defining bad states in the sequence that correspond to at least some of the received packets; claim 10/27/44/61 – counting a number of transitions in the sequence between good and bad states; claim 16/33/50/67 – count a number of packets and divide the count of transitions by the count of packets; claim 17/34/51/68 – counted transitions are from bad to good states; counted packets are lost packets).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the method, apparatus and processing article of Whitfield by measuring the frequency and duration of dropouts due to lost packets in the received voice data, thereby enabling a calculation of probability that the speech will be perceived as being distorted by sudden changes in speech waveforms or occurrence of incomplete words.

- In regards to Claims 7-9, 24-26, 41-43, and 58-60,

Whitfield v. Hardy discloses a method, apparatus and processing article for receiving, processing, and determining packet loss statistics of voice data transmitted over a packet network.

Whitfield does not expressly show determining QoS parameters (statistics) of an average, maximum or variance of a plurality of duration numbers.

Hardy shows that the average frequency and duration of dropouts due to lost packets are measured and summarized statistically to calculate the distortion probability of the received voice data (Col. 7, lines 28-35; claim 8/25/42/59 – burstiness statistic is an average of a plurality of duration numbers). Similar statistics for maximum and variance measures for frequency and duration of lost packets could be used to gauge the quality of the received voice signal (claim 7/24/41/58 – burstiness statistic is a maximum of a plurality of duration numbers; claim 9/26/43/60 – burstiness statistic is a variance of a plurality of duration numbers).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the method, apparatus and processing article of Whitfield by determining statistics for the average frequency and duration of lost packets, as taught by Hardy. This would enable statistical determination of the overall quality of the received voice signals. Similarly, determining a maximum or variance of the frequency and duration of lost packets could be used for determining other quality measures of the received signals.

- In regards to Claims 13, 30, 47, and 64,

Whitfield v. Hardy discloses a method, apparatus and processing article for receiving, processing, and determining packet loss statistics of voice data transmitted over a packet network.

Whitfield discloses a QoS factor that may include a missing packet ratio, which indicates a tolerable limit of lost packets to the total number of transmitted packets over a standard period of packets (Col. 4, lines 14-31; claim 13/30/47/64 – compute a normalized burstiness statistic from the burstiness statistic).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Talpade et al. (US 20020145982A1) discloses a method and system for quality of service provisioning for IP virtual private networks
- Crichton et al. (US 20020031126A1) discloses a bit synchronizer and internetworking system and method
- Martinian et al. (US006694478B1) discloses low delay channel codes for correcting bursts of lost packets
- Rueda et al. (US006597660B1) discloses a method for real-time traffic analysis on packet networks
- Schuster et al. (US006487603B1) discloses a method and apparatus for real time communication over switched networks
- Borella et al. (US006434606B1) discloses a system for real time communication buffer management
- Goetz et al. (US005956729A) discloses multimedia file, supporting multiple instances of media types, and method for forming same

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 703-305-0633. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
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